

UNIT 5 Probability

Mental Tests

Test 5.1 (no calculator)

1. If I throw a fair dice 30 times, how many SIXES would I expect to get? (5)
2. The probability of a train being late is 0.2.
What is the probability of it not being late? (0.8)
3. A coin is tossed two times. Give all the possible outcomes. (HH, HT, TH, HH)
4. A biased coin has a probability of $\frac{2}{3}$ of obtaining heads when thrown.

What is the probability of obtaining tails when the coin is tossed once? $(\frac{1}{3})$
5. In a raffle, 100 tickets are sold. If you have bought 5 tickets, what is the probability of you winning the first prize? $(\frac{5}{100} = \frac{1}{20})$
6. When you throw a fair dice, what is the probability of obtaining the number 2? $(\frac{1}{6})$
7. A bag contains 6 RED balls and 4 BLUE balls.
One ball is taken out at random.

What is the probability of it being a BLUE ball? $(\frac{4}{10} = \frac{2}{5})$
8. When you throw a fair dice, what is the probability of obtaining an even number? $(\frac{3}{6} = \frac{1}{2})$
9. A bag contains 20 discs, numbered 1 to 20. A disc is selected at random.

What is the probability that the number on it is divisible by 3? $(\frac{6}{20} = \frac{3}{10})$
10. A fair coin is tossed twice, What is the probability of obtaining two HEADS? $(\frac{1}{4})$

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Test 5.2 (*no calculator*)

1. If I toss a fair coin 50 times, how many HEADS would I expect to get? (25)
2. The probability of it raining tomorrow is 0.3.
What is the probability of it not raining tomorrow? (0.7)
3. A dice is thrown once, and a coin is tossed once.
List all the possible outcomes. (1H, 2H, 3H, 4H, 5H, 6H;
1T, 2T, 3T, 4T, 5T, 6T)
4. A biased coin has a probability of 0.6 of obtaining TAILS when tossed.
What is the probability of obtaining HEADS when the coin is tossed once? (0.4)
5. In a raffle, 500 tickets are sold. If you have bought 10 tickets, what is
the probability of you winning the first prize? ($\frac{10}{500} = \frac{1}{50}$)
6. When you throw a fair dice, what is the probability of obtaining the number 6? ($\frac{1}{6}$)
7. A bag contains 6 RED balls, 7 GREEN balls and 2 YELLOW balls.
One ball is picked at random.
What is the probability of it not being RED? ($\frac{9}{15} = \frac{3}{5}$)
8. When you throw a fair dice, what is the probability of obtaining a number
which is odd? ($\frac{2}{6} = \frac{1}{3}$)
9. A bag contains 50 discs, marked 1 to 50. A disc is selected at random.
What is the probability of obtaining a number which is divisible by 10? ($\frac{5}{50} = \frac{1}{10}$)
10. A fair dice is thrown twice. What is the probability of obtaining two SIXES? ($\frac{1}{36}$)

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Mental Tests

Test 5.3 (*no calculator*)

1. An equal 5-sided spinner is marked with the numbers 1, 2, 3, 4 and 5.
If spun once, what is the probability of obtaining an even number? $\left(\frac{2}{5}\right)$
2. A bag contains 12 marbles; 5 are RED, 3 are WHITE and 4 are BLUE.
When a marble is picked at random, what is the probability of obtaining a RED marble? $\left(\frac{5}{12}\right)$
3. Using the bag of marbles in Question 2, what is the probability of picking at random, a marble which is not WHITE? $\left(\frac{9}{12} = \frac{3}{4}\right)$
4. In a raffle, 400 tickets are sold. You bought 5 tickets and your brother bought 3 tickets.
What is the probability of either you or your brother winning the first prize? $\left(\frac{8}{400} = \frac{1}{50}\right)$
5. A bag contains 20 discs numbered 1 to 20. A disc is selected at random.
What is the probability that the number on the disc is even? $\left(\frac{1}{2}\right)$
6. Using the bag of discs in Question 5, what is the probability that the number on a disc drawn at random is a prime number? $\left(\frac{8}{20} = \frac{2}{5}\right)$
7. A fair coin is tossed three times. What is the probability of obtaining three HEADS? $\left(\frac{1}{8}\right)$
8. Two fair dice are rolled. The sum of the two numbers uppermost is noted.
What is the probability of this sum being less than 4? $\left(\frac{3}{36} = \frac{1}{12}\right)$
9. A bag contains 3 BLUE balls, 5 RED balls and 4 YELLOW balls.
One ball is taken at random, its colour noted, and then put back into the bag.
A second ball is taken at random, and again its colour is noted.
What is the probability that both balls are the same colour? $\left(\frac{38}{144} = \frac{19}{72}\right)$
10. A bag contains 3 RED balls and 6 BLUE balls. A ball is selected at random and its colour noted. It is not put back in the bag.
A second ball is selected at random.
What is the probability of obtaining 2 RED balls? $\left(\frac{6}{72} = \frac{1}{12}\right)$

UNIT 5 Probability

Mental Tests

Test 5.4 (*no calculator*)

1. An equal 7-sided spinner is marked with the numbers 1, 2, 3, 4, 5, 6 and 7.
If spun once, what is the probability of obtaining an odd number? $\left(\frac{4}{7}\right)$
2. A bag contains 15 marbles of which 5 are BLUE, 3 are WHITE and the rest are RED.
When one marble is picked at random, what is the probability of obtaining a BLUE marble? $\left(\frac{5}{15} = \frac{1}{3}\right)$
3. When a marble is picked at random from the bag in Question 2, what is the probability that it is not a RED marble? $\left(\frac{8}{15}\right)$
4. In a raffle, 500 tickets are sold. You buy 5 tickets one day, and 10 the next day.
What is the probability of you winning the first prize? $\left(\frac{15}{500} = \frac{3}{100}\right)$
5. A bag contains 30 discs numbered 1 to 30. A disc is selected at random.
What is the probability that the number on the disc is odd? $\left(\frac{1}{2}\right)$
6. Using the bag of discs in Question 5, what is the probability that a disc selected at random has a number divisible by 5? $\left(\frac{6}{30} = \frac{1}{5}\right)$
7. A fair coin is tossed four times. What is the probability of obtaining four TAILS? $\left(\frac{1}{16}\right)$
8. Two fair dice are rolled. The sum of the two numbers uppermost is noted.
What is the probability of this sum being equal to 11? $\left(\frac{2}{36} = \frac{1}{18}\right)$
9. A bag contains 3 RED balls and 5 BLUE balls.
One ball is taken at random, its colour noted, and then put back into the bag.
A second ball is taken at random, and again its colour is noted.
What is the probability of obtaining two balls of different colours? $\left(\frac{30}{64} = \frac{15}{32}\right)$
10. A bag contains 4 RED balls and 5 BLUE balls. A ball is selected at random and its colour noted. It is not put back in the bag.
A second ball is selected at random.
What is the probability of obtaining 2 BLUE balls? $\left(\frac{5}{18}\right)$